AGRICULTURAL POLICY GHG IMPACT ASSESSMENT TRAINING

Deliverable 2.B

Prepared by: Zechariah Bani

Date: 9/18/2024

SEPTEMBER 18, 2024
COMPILED BY PROJECT COODINATOR & NATIONAL EXPERTS

DISCLAIMER

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, photocopying, recording or otherwise, for commercial purposes without prior permission of Vanuatu. Otherwise, material in this publication may be used, shared, copied, reproduced, printed and/or stored, provided that appropriate acknowledgement is given to Vanuatu and ICAT as the source. In all cases the material may not be altered or otherwise modified without the express permission of Vanuatu.

PREPARED UNDER

The Initiative for Climate Action Transparency (ICAT), supported by Austria, Canada, Germany, Italy, the Children's Investment Fund Foundation and the ClimateWorks Foundation.

The ICAT Secretariat is managed and supported by the United Nations Office for Project Services (UNOPS)

Introduction

The Republic of Vanuatu has negligible GHG emissions and acts as a net sink due to large areas of forest; however, the Government of the Republic of Vanuatu is fully committed to effective, and transparent implementation of the Paris Agreement (PA). In order to comply with its treaties under the UNFCCC and the PA, Vanuatu prepared and submitted National Communication (NC) reports – NC1 (30 Oct 1999), NC2 (30 Aug 2016), and NC3 (22 Mar 2021), the First Biennial Update Report (BUR), (16 Dec 2021); Intended Nationally Determined Contribution (INDC), (29 Sept 2015) and the revised NDC (9 Aug 2022).

The Initiative for Climate Action Transparency (ICAT) aims to help countries better assess the impacts of their climate policies and actions and fulfil their transparency commitments. It does this by increasing the overall transparency capacities of countries, including the capacity to assess the contribution of policies and actions on countries' mitigation objectives, and providing appropriate methodological information and tools to support evidence-based policymaking and impact of policies. ICAT's work is country-driven, efforts build on existing MRV systems and knowledge in countries and complement previous or ongoing activities by other initiatives, where applicable. Support provided is tailored to the country's context and priorities. ICAT´s work is aimed at engaging national expertise as much as possible while encouraging peer-to-peer learning.

ICAT is supporting Vanuatu in building national capacity for compiling GHG inventories and assess GHG impact of policies in the agriculture sector.

This deliverable is a report on the Agriculture Policy GHG Impact Assessment training for the national experts from various relevant government and private sectors facilitated by the GHGMI from 24th – 26th June, 2024.

Training Programme

The Agriculture Policy GHG Impact Assessment Training was held in Port Vila on 24th to 26th June 2024 at the Melanesian Hotel. The workshop was facilitated by Greenhouse Gas Management Institute (GHGMI) as the implementing partner of the project. The workshop gathered key stakeholders[1] from Department of Agriculture, Department of Livestock, Department of Forestry and National Advisory Board, a total of eight participants to build national capacity in the application of ICAT Agriculture methodology for the assessment of agriculture policy impacts in terms of GHG and sustainable development (SD). During the workshop, GHG and sustainable development (SD) impacts of two agricultural policies, namely, *Environmental Protection and Sustainable Farming*, and *Commercial Livestock Production* were assessed and specific indicators to track GHG and SD impacts of agricultural policies were identified. Environmental protection and sustainable farming aims to achieve environmentally friendly agriculture and also improving and conserving agriculture soils. Commercial livestock production aims to operate productively and sustainably, and promote climate resilient farming practices. The 3-day training focused on developing the policy description and causal chain, baseline and policy scenarios, identifying data, methodology and indicators.

[1] *See ANNEX A, Participants List.*

Day 1

On the first day of the workshop, the overview of agriculture was discussed and insights were shared on Vanuatu's History in agriculture and the primary responsibility of the productive sector. Also, discussions were made about the core functions of the Ministry of Agriculture, Livestock, Fisheries, Forestry and Biosecurity, which consist of:

- Increase production
- Provide extension, training, information
- Ensure food security and improve resilience
- Maintain biosecurity
- Market facilitation (price and market information)
- Service delivery and revenue collection

In addition, there are 13 thematic areas in the agriculture sector policy, however, thematic area number 8 will be the center of attention for assessment. Also, information about the ministries 2024 business plan composition and approach were conversed.

Some significant questions were raised regarding commercial farming & semi commercial farming, what incentives are given to farmers and, are trainings provided to farmers. A presentation from the agriculture sector was made to answer those important questions stating the difference between semi commercial farming and commercial farming. Also, clarifying that incentives are given to farmers in terms of agricultural machineries and seedlings to farmers.

However, the first session closed with the connection between agriculture and climate change and introducing the two policies the project will assess. The policies that will be assessed are:

- **Commercial Livestock Production**: the policy went into effect in 2015 and will end in 2030. The policy aims to achieve increase cattle production and grow semi-commercial operations in Vanuatu by a) promoting joint partnership between smallholder farmers and large commercial cattle farmers to provide wider access to machinery and pasture; b) increasing investment in commercial cattle farming; c) Reducing unproductive cattle population through improved reporting requirements incorporated into land leases. The policy should also improve cattle productivity by improving pasture and, improve cattle welfare through establishment of holding yards and other infrastructure. Moreover, there are intended impacts/benefits of the policy which includes economic development, food security, livelihood improvement, environmental sustainability and quality standards.
- **Environmental Protection & sustainable Farming**: the policy was proposed in 2007 and went into effect in 2015 and will close in 2030. This policy aims to implement agroforestry practices such as intercropping root crops with perennial crops (alley cropping). It also aims to establish urban gardens in yards to support local food production and facilitate application of organic fertilizer (purchased or homemade) to increase production in the back yard gardens.

Second session was on policy overview. Different parts of the assessment processes were outlined, which consists of[2]:

- Plan Assessment
- Select and Describe Policy
- Assess Policy

The Acting Director, Mr. Godfrey Bomo gave insights from the Department of Forestry to close off the second session. He outlined the activities/projects that the Forestry department is carrying out to help regulate GHG impacts[3]. He went on stating that the Department of Forestry is willing to assist the project in any way possible if needed.

The third session was on the detailed policy description. There are five different components that needs to be addressed while developing the policy description:[4]

1. Inputs
2. Activities
3. Intermediate effects
4. GHG impacts
5. Non-GHG effects

The participants divided into two groups and worked on refining policy description for the selected policies which the consultants have selected prior to the workshop[5]. A template was provided to support the activity.

A detailed description of the policy is essential to understand what activities are occurring under the policy to inform the assessment.

The final session for day one workshop was a discussion with the DARD monitoring officer, Margaret Morris, to share information about the Vanuatu agricultural sector, together with the strategies and guiding policies[6]. Questions were raised relating to relevant information and how it could be acquired. DARD monitoring and evaluation officer provided those relevant documents that will help facilitate assessing the policies.

[2] *See ANNEX B*
[3] *See ANNEX B*
[4] *See AANEX B*
[5] *See ANNEX B*
[6] *See ANNEX B*

Day 2

On the second day of the workshop, the concept of causal chain was introduced. A causal chain is a conceptual diagram tracing the process by which the policy leads to GHG impacts through a series of interlinked logical and sequential stages of cause-and-effect relationships. A causal chain helps to better understand, visualize, and communicate how the policy and its corresponding inputs and activities cause intermediate effects and ultimately result in GHG impacts and other impacts[7]. An example causal chain was presented to demonstrate how it should be prepared[8]. The participants split into two groups to develop causal chains for the policies selected for assessment.

Next, setting assessment boundaries was discussed. This includes determining the periods of the policy and also significant GHG impacts of the policy that need to be quantified. For the selected policies, the team discussed and determined appropriate temporal boundaries for the assessment. The agriculture policy assessment period is 2015-2020, 2021-2023, 2024-2030. The livestock policy assessment period is 2015-2023, 2024-2030. For GHG impacts, the significance of the impact is determined based on the likelihood and magnitude of the effect. If impact is significant, it is included in the assessment, if not, it is not included in assessment[9].

The next section of the workshop focused on identifying and documenting the baseline and policy scenarios. Baseline scenario is a set of conditions/assumptions where emissions continue to follow a similar trend if there are no mitigation measures. Policy scenario is a set of conditions/assumptions where mitigation measures are implemented.

Baselines may be constant, simple trend or complex/modelled trend baselines. Constant baseline assumes that there are no changes in agricultural practices, the use of technology, or land use during the with respect to the situation prior to policy implementation. Simple trend baseline assumes that the parameters in the baseline scenario evolve similarly as they did in the period prior to the policy implementation

There can also be multiple policy scenarios - optimistic and conservative. When reporting an impact, we need to specify whether it is positive or negative. Policy scenario is a termed scenario With Additional Measure, meaning we expect to see a change in the emissions as a result of the policy.

In identifying relevant parameters for the scenarios, they must be measurable and observable[10]. The team worked in 2 groups to develop baseline and policy scenarios for the selected policies.

[7] *See ANNEX B*
[8] *See ANNEX B, Activity 1*
[9] *See ANNEX B, Activity 2*
[10] *See ANNEX B, Activity 3*

Day 3

Final day of workshop covered the basic approach to calculating GHG Emissions. Activity data and emission factors are fundamental in calculating emissions. Activity data is the magnitude of human activity resulting in emissions or removals taking place during a given time. Emission factor is the coefficient that quantifies emissions or removals of gas per unit activity. Emission factor is based on a sample of measurement data[11].

Following an overview of methodology to estimate enteric fermentations emissions from livestock, classify land, and estimate soil carbon, the participants worked in groups to refine policy key performance indicators. the participants also identified key sustainable development impacts of the policies[12].

In addition, Saravina Matan, a representative from the livestock department attended the final day of the workshop and discussed activities and polices relating to commercial livestock production. A dialogue for acquiring important information on the policy under assessment was established between Saravina Matan and the project team.

Finally, the workshop concluded with the discussion of next steps in regards to policy assessment[13].

Conclusion

All in all, the training was executed well and the participants expressed their enthusiasm for similar trainings if given the opportunity.

The training was successful, however there was low turnout in from other departments, in particular agriculture and livestock departments. This was due to unforeseen scheduling conflicts. Input from these stakeholders is critical in understanding policy design and implementation.

Acting Director Nelson Kalo gave his closing remarks expressing appreciation for collaborating with ICAT and GHGMI. The workshop served as a foundation for enhancing capacity to conduct policy assessment work in the future.

[11] *See ANNEX B*
[12] *See ANNEX B*
[13] *See ANNEX B*

ANNEX A Participant List

Name	Organization	Position	Days attended		
			Mon	Tue	Wed
1. Olga Lyandres	GHGMI	Project Manager	☑	☑	☑
2. Zechariah Bani	DOCC	Project Coordinator	☑	☑	☑
3. Johnethy Morris	Independent Consultant	Consultant	☑	☑	☑
4. Anita Kay	Independent Consultant	Consultant	☑	☑	☑
5. Florancza Abel	Independent Consultant	Consultant	☑	☑	
6. Antoine Ravo	DARD	Director	☑		
7. Godfrey Bomo	Dept. of forestry	Act. Director	☑		
8. Olivia Finau	DOCC	Communication Officer	☑		
9. Jasmina Takaro	DOCC	Intern (Mitigation)	☑		
10. Margaret Morris	DARD	Monitoring and Evaluation Framework Developer	☑	☑	
11. Ericksen Packett	NAB (MOCC)	Policy officer		☑	
12. Nelson Kalo	Department of Climate Change	Acting Director Climate Change			☑
13. Saravina Matan	Department of Livestock	Laboratory Technician			☑

Annex B AGRICULTURE POLICY ASSESSMENT Workshop Minutes

DAY 1: Policy Description and Causal Chains

Monday 24 June 9am
Location: Melanesian Hotel Conference Room
Facilitator's name: Olga Lyandres
Note taker's name: Florancza Abel and Anita Kay

VANUATU AGRICULTURE SECTOR OVERVIEW

Presented by Antoine Ravo.

MALFFB Values

- Team spirit
- Share resources
- Teamwork
- Weekly meetings

Vanuatu History

Productive sector: engine for economic growth in agriculture economy.

Directive given by productive sector provided for in article 7 of constitution (B) and SDGs principles (1, 2,3, 5, 8, 11, 12, 13, 15 and 17).

Primary responsibility for the productive sector.

- Increase production of natural resources such as agriculture, livestock, forestry, and fisheries services.
- Maintain a consistent supply of agriculture, livestock, forestry, fisheries.
- Improved the quality of agriculture produce to meet national, regional and international market standards.

Policy Administration		**Legislative Administrative**
MALFFB Policies →	**Policy Maker** →	Agriculture act
Sub-sector strategies →	**Policy Transformer** →	Agriculture regulations
Business plan →	**Policy Implementor** →	Orders

MALFFB Core Functions

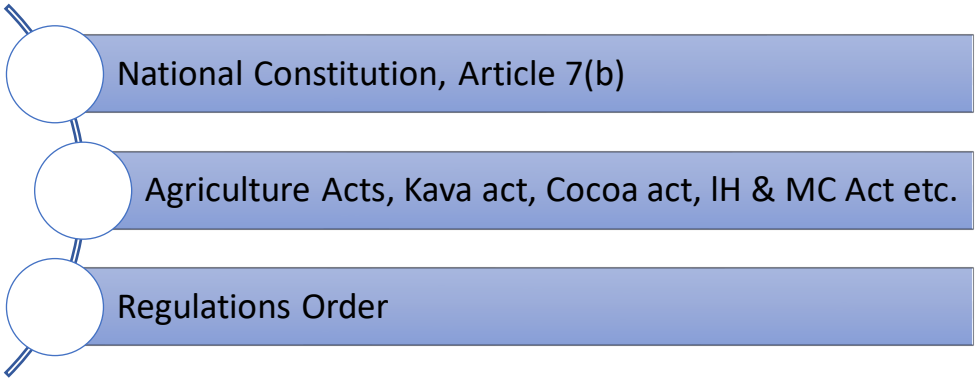
- Increase Production
- Extension, Training, Information Dissemination (including ICT)
- Food Security and Improve Resilience'
- Biosecurity Maintained
- Market Facilitation (Price and Market Information)
- Service Delivery and Revenue Collection

Alignment to Government policies and NSDP Pillars.

13 Thematic Areas in the Agriculture sector Policy

1. Institutional Set-up and compliance
2. Extension and Training
3. Finance
4. Agriculture land use
5. Agriculture Investment
6. Research and Development
7. Planting Materials, Tools and Agriculture Inputs
8. Environmental Production and Sustainable farming
9. Production and Market Access
10. Food Security
11. Employment
12. Climate variability, climate change and Disaster Risk Reduction
13. Gender and Vulnerability Groups

Legislation Alignment and Direction



DARD PROGRAM BUDGET ACTIVITY FOCUS

118 active cost centers

Kave development	Improve Production through Technology
Coconut development	Root crops development
Cacao development	Fruit and Vegetable development
Coffee development	Disaster Response and recovery
Pepper development	Aelan Kakai production
Vanilla development	Product standards
Tahitian Lime development	
Improve market access	

MALFFB 2024 Business Plan Composition and Approach

15 coordinators → 23 National Development Programs→ 118 Development Facilitators→ 150

Household % in Agriculture

- 31% in farming and breeder
- 28% in crop only
- 14% farm breeder and forestry.

Age in Agriculture

- 20-30 years: 27.2%
- Over 60 years: 12.7%

Agriculture household main source of income

- Selling and Growing crops 57.3% which is the highest source of income.

Main cash crops are chosen because of the strategies that were implemented. – Kava, Coffee, Cacao, Tahitian Lime, Pepper, Coconut, Noni, Vanilla.

Opportunity for Partnership

- Review of the Vanuatu agricultural sector Policy (2015-2030)
- Agriculture Sector Policy Evaluation and Assessment – Investment (cost) vs outcomes (impacts)
- Agriculture Policy and Institutional arrangements in line with the Ministry Policy.

ADDITIONAL NOTES (QUESTIONS ANSWERED BY DARD DIRECTOR)

COMMERCIAL FARMING DEFINITION:

- Semi commercial farming could be one hectare.
- Commercial farming could be more than one hectare.
- Introduction of commercial farming certificates.
- (Incentives): Serious Farmers are now paying for permits. Ministry provides agricultural machineries, Seedlings to farmers and now farmers support the ministry.
- Training: Yes, training is provided to the farmers by the Ministry.

PRACTICES

Encouraging Agro-forestry system especially in big islands. Efate, Santo, Tanna, Erromango, Gaua, Malekula.

CONNECTION BETWEEN AGRICULTURE AND CLIMATE CHANGE

- Greenhouse gas emissions (Methane, carbon dioxide and nitrous oxide) from livestock, manure management, land-use changes (deforestation, agricultural land changes).

POLICIES

1. AGRICULTURE SECTOR POLICY

Environmental Protection and Sustainable Farming

2. LIVESTOCK POLICY

Commercial Livestock Production

POLICY OVERVIEW

Presented by Olga Lyandres

ASSESSMENT PROCESS

PART 1: PLAN ASSESSMENT

- **Identify stakeholders** – Need experts in different agricultural spaces to help understand the impacts of the policies that leads to estimated greenhouse gas emissions.
- **Set objectives**- "E.g.: To understand potential impact reduction". Use the objectives to set some targets. Do this before starting off Policy assessment.

- **Review Definitions -** Be accurate as possible. Document everything
- **Identify tracking indicators:** How do you know the policies are working. Check and identify the indicators is critical before starting off the policy assessment**.** These indicators should be measurable.

Indicators example: Areas of land, number of animals, number of workshops, timeframe.

PART 2: SELECT AND DESCRIBE POLICY

- **Prioritize Policies**: Gather data about the policies, collect tools and prioritize which policies needs to be assessed.
- **Describe Policy**: Provide a deep explanation or details for the selected policies. What is the policies progress?
- **Set assessment boundaries:** E.g.: To change manure storage. When distributing manure, it will increase the emissions of NO2. It is important to know when to stop distributing manure to reduce emissions (Set boundaries).
- **Identify Synergies:**

PART 3: ASSESS POLICY

- **Identify baseline and scenarios**: Making a table of different parameters to compare different scenarios.
- **Identify data needs and methodology:** What data is needed? What equations do you need?
- **Estimate GHG emissions:** Calculate GHG emissions from the data you have.
- **Evaluate tracking indicators:** Reflect and apply corrective actions. Have recommendations for moving to the next step. Identify data gaps. Lessons learned in the conclusion of the report on what can be improved in the future.

Activities the Forestry Department carries out that helps regulate the amount of emissions released

- ❖ Established forest reference period
- ❖ Have developed strategies to reduce deforestation associated with agriculture
- ❖ Have national forest inventory that will be published at the end of this year.
- ❖ Established a national forest monitoring system.
- ❖ Engaged in development of forestry NDC strategies that address the GHG emissions.

DETAILED POLICY DESCRIPTION

Presented by Olga Lyandres

Inputs: Resources that go into implementing a policy.

Activities: Administrative activities involved in implementing the policy.

Intermediate effects: Changes in behavior, technologies, processes or practices. (*Carrying out activities you are trained to do. E.g. Do meetings to introduce small farmers and commercial farmers. The meetings can allow exchange of information between the farmers and small farmers can carry out changes in their practices.)*

Other examples: Selection of trees species, Livestock gaining weight, Farmers having diversity of herds.

GHG Impacts: Changes in GHG emissions by sources or removals by carbon pools that result from the intermediate effects of the policy. (*There can be more productive livestock or less livestock with healthy weights.)*

Non-GHG effects: Changes in relevant environmental, social and economic conditions that result from the policy.

ACTVITY: WORKING IN GROUPS TO REFINE POLICY DESCRIPTION

Step 1: Review and refine tables with policy description.

Step 2: Fill in detailed policy description – inputs, activities, intermediate effects. Etc.

Step 3: Fill in policy GHG impacts

Step 4: Write down policy elements you identified on colored papers.

AGRICULTURE REPRESENTATIVE: MARGARET MORRIS

- Shares information about agriculture in Vanuatu together with the strategies and guiding policies.

Decisions and Actions

- Decision 1: DARD monitoring and evaluation officer provided the following documents:
  - *The Root crop strategy*
  - *The fruit and Vegetable Strategy*
  - *Organic Farming Policy*
  - *Business plans indicator for program area 47T (Sustainable Agriculture) – Targets/achieved for 2021-2023 and targets for 2024-2025.*

- Activity Action items assigned during the workshop:
    - Fill Policy Description Worksheet for Policy Livestock: [Johnethy Morris, Zechariah Bani, Jasmina Takaro]
    - Fill Policy Description Worksheet for Agriculture Policy: [Anita Kay, Florancza Abel, Olga Lyandres]

Next Steps

- The agriculture representatives attended on day 1 of the agriculture and livestock policy sessions, whereas the livestock representatives were absent. A subsequent email was dispatched to secure their presence for day 2 and day 3 of the training.

- An additional email was directed to Mrs. Margaret Morris requesting the submission of relevant documentation to aid the ICAT team in completing the Policies worksheet.
- The causal chain activity was rescheduled to be conducted on day 2 of the workshop.
- Day 2 of the workshop was on Tuesday 25th of June 2024.

DAY 2: Baseline And Policy Scenarios

Tuesday June 25th 9am
Location: Melanesian Hotel Conference Room
Facilitator's name: Olga Lyandres
Note taker's name: Anita Kay & Florancza Abel

CASUAL CHAIN ACTIVITY

Policy Casual Chain

- A visual diagram of policy elements- helps to understand what leads to changes in emissions.
- Shows sequential progressions from policy inputs to activities to intermediate effects, and finally GHG impacts.
- They may also lead to non GHG impacts.

ACTIVITY 1: REFINE POLICY DESCRIPTION AND CAUSAL CHAIN ACTIVITY

Step 1: Review and refine tables with policy description (template tab 1)
Step 2: Fill in detailed policy description – inputs, activities, intermediate effects etc.
Step 3: Fill in policy GHG impacts
Step 4: Write down policy elements identified on colored paper
Step 5: Create a causal chain for each policy using color coded paper and markers.
- Iterating between the policy description and causal chain will help identify and understand all the elements needed for policy implementation and set assessment boundaries.

Step 6: Create a PowerPoint with causal chain to report out.

SET ASSESSMENT BOUNDARY

Periods

Agriculture Policy assessment Period**: 2015-2020, 2021-2023, 2024-2030**

Livestock Policy Assessment Period**: 2015-2023, 2024-2030**

GHG Impacts

Likelihood + Magnitude = Significance (If impact is significant include in assessment, if not do not include in assessment)

<table>
<tr><td rowspan="6">Likelihood</td><td colspan="4">Magnitude</td></tr>
<tr><td></td><td>Minor</td><td>Moderate</td><td>Major</td></tr>
<tr><td>Very Likely</td><td rowspan="3">Not significant</td><td colspan="2" rowspan="2">Significant</td></tr>
<tr><td>Likely</td></tr>
<tr><td>Possible</td><td colspan="3" rowspan="2"></td></tr>
<tr><td>Unlikely</td></tr>
<tr><td>Very Unlikely</td><td colspan="3"></td></tr>
</table>

ACTIVITY 2: Working in groups

Step 1: Evaluate each GHG impact significance

- Consider Magnitude
- Consider Likelihood

Step 2: Determine whether to include impact in assessment boundaries.

Step 3: Fill in the assessment boundary table

BASELINE AND POLICY SCENARIOS

- Baseline Scenario: A set of conditions/assumptions where emissions continue to follow a similar trend if there was no mitigation measures.
- Policy Scenario: A set of conditions/assumptions where mitigation measures are implemented.
    - Can have multiple scenarios – optimistic and conservative scenarios.

RELATIONSHIP BETWEEN BASELINE AND POLICY SCENARIOS

When reporting an impact, need to specify whether it is positive or negative.

Baseline types

Constant baseline: Assumes that there are no changes in agricultural practices, the use of technology, or land use during the baseline period with respect to the situation prior to policy implementation.

Simple trend baseline: Assumes that the parameters during the baseline scenario evolve similarly as they did in the period prior to the baseline period. Example: Constant rate of increasing livestock population.

Identifying relevant parameters

Changes because of the policy- it must be measurable and observable.

- People: Number of people adopting these new practices
- Land – Area of land under new management, area of land concerted from crops to trees
- Animals: Number of animals taking different feeds, animal weights, animal type, quantities.
- Inputs: Type and/or amount of fertilizer applied.

Values can be sourced from national inventory guidelines.

ACTIVITY 3: WORKING IN GROUPS TO ESTABLISH BASELINE AND POLICY SCENARIO

Step 1: Identify and list parameters affected by the policy.

Step 2: Discuss their relevance and describe how the parameters change in baseline scenario and with policy.

Step 3: Discuss the value of relevant parameters and where the information comes from for each policy.
Step 4: Create and fill in a table to document baseline and policy scenarios parameters and values.

Decisions and Actions

- Decision: Mrs. Maragret Morris (DARD) to follow up with the soil specialist in the agriculture department to provide further information on organic fertilizers, Agro-forestry and back yard gardening (BYG).

- Activities Action items assigned during the workshop to be done in the Policy excel worksheet:

    - Do causal chain activity for the Livestock Policy in relation to the detailed policy description [Johnethy Morris, Zechariah Bani, NAB Officer].
    - Do causal chain activity for the Agriculture Policy in relation to the detailed policy description [Anita Kay & Florancza Abel]
    - Fill table for Set Assessment Boundary Activity for Livestock Policy [Johnethy Morris, Zechariah Bani & NAB Officer].
    - Fill table for Set Assessment Boundary Activity for Agriculture Policy [Florancza Abel & Anita Kay]
    - Fill in table to establish baseline and policy scenario for livestock policy [Johnethy Morris, Zechariah Bani & NAB Officer].
    - Fill in table to establish baseline and policy scenario for agriculture policy [Anita Kay & Florancza Abel].

Next Steps

- The agriculture representatives attended on day 1&2 the agriculture and livestock policy sessions, whereas the livestock representatives were absent. A subsequent email was dispatched to secure their presence for day 3 of the training.
- Day 3 training was on Wednesday 26th June 2024, at the same venue.

DAY 3: Data, Methodology, and Indicators

Wednesday 26th June 9am
Location: Melanesian Hotel Conference Room
Facilitator's name: Olga Lyandres
Note taker's name: Anita Kay

BASIC APPROACH TO CALCULATING GHG EMISSIONS

Activity data

- The magnitude of human activity resulting in emissions or removals taking place during a given time

E.g. Data on energy use, metal production, land areas, management systems, lime, and fertilizer use.

Emission Factor

- Coefficient that quantifies emissions or removals of gas per unit activity.
- Emission factors based on a sample of measurement data.

GENERAL EQUATION: **GHG Emissions= Activity data x Emission Factor**

Note: Vanuatu will be using the default emission factor

LIVESTOCK METHODOLOGY

LIVESTOCK ACTIVITY DATA

NOTE: Vanuatu will be using the TIER 1 Approach

Tier	Data Type	Example of data and parameters
Tier 1/a	Species Categorization	Species and subcategories including where relevant high or low productivity
Tier 1/a	Livestock Population	• Average annual population (including Sex) calculated from the number of animals produced

		annually, by species and subcategory • Birth, Death, and slaughter information

Livestock activity data source

- Vanuatu Bureau of Statistics
- National agriculture census

COMMENT: LIVESTOCK PARTICIPANT

Most of the leading cattle producing farms such as traverso has not provided data on the annual production of cattle throughout the past few years.

QUESTIONS LIVESTOCK POLICY

What would be considered commercial livestock?
Response: 50 plus heads of cattle

Question: How much land is used for commercial farming?
Response: To be confirmed.

- NOTE: Promote outgrow contract programs – will be removed from the diagram

Question: Information kit on products, specify what products?
Response: Awareness package regarding livestock production.

LAND METHODOLOGY

Representing Land Use Areas – Approach 1

- Represent land-use area totals within a defined spatial unit, which is defined by country boundaries
- Only the net changes in land–use area are tracked through time
- The exact location or pattern of land use is not known
- Further stratification by land management

SOIL CARBON- METHODOLOGY

EQUATION: $\Delta_C Mineral = (SOC_O - SOC_{(O-T)}) / D)$

Δ_C Mineral = Annual change in organic C stocks in mineral soils, tonnes C/yr

SOC_O = Mineral soil organic C stock at the beginning of the assessment period, tonnes C

T = number of years over an assessment period, yr. (i.e., the Policy implementation period over which the change in management occurred).

D = Transition period, 20 years

Change in soil organic carbon is a total change from different land use types/management systems for a given year

Positive Change = Carbon Sequestration

Negative Change = Emissions

NOTE: use the 2019 refinement

- Volume 4: Agriculture, Forest, and other land uses (ALOFU)
- Chapter 2 – Generic methodologies

SOIL CARBON ACTIVITY DATA

TIER	DATA TYPES	EXAMPLES OF DATA AND PARAMETERS
Tier 1	• **Land stratification** •	• **Land use category** • **Soil types** • **Climate zones** • **Area of land within each land use category and subcategory** • **Land use change between category and subcategory over time**
Tier 1 / Tier 2	**Land Management**	• **Tillage regime** • **Inputs** • **Irrigation hydrology conditions** • **Grazing intensity** • **Agropractices**
Tier 1 / Tier 2	**Land Cover**	• **Vegetation types**

SOURCE OF ACTIVITY DATA

QUESTIONS

Q1. Soil type in Vanuatu?

Q2. Soil Carbon Value (depends on the climate/ Hence the different climates across the Islands in Vanuatu need to be noted)

Q3. What are the different climate zones in Vanuatu?

The box below shows a list of places where data can be collected from. (These data should answer the questions above)

WHERE DATA CAN BE COLLECTED

1. Meteo Department
2. Climate change Department
3. Agriculture livestock Department
4. Agriculture Department

POLICY KPI

- Use: Tracking policy performance over time
- Has to meet requirements set in modalities, procedures, and guidelines
- Indicators will be
  - ➢ Relevant to the mitigation measures in the NDC
  - ➢ Measurable
  - ➢ Utilize consistent methods for evaluation
    - ❖ Note: KPI can be further refined and modified during the process.
    - ❖ See *Table 2.5 of the ICAT Agriculture Methodology*

WORKING IN GROUPS TO REFINE POLICY KPIs

Step 1: Review the table with the policy KPI for each policy and refine

Step 2: Discuss KPIs and refine the list – add and edit the list to better capture how to track policy implementation progress.

Step 3: Identify data parameters needed to evaluate KPIs and potential data sources.

Example of the activity from the Agricultural policy KPI

Indicator 1: Number of participants attended the training on sustainable agricultural practices (agroforestry)	Indicator 2: Number of participants who have attended the training on sustainable urban gardens	Indicator 3: number of participants who have attended the trainings on the application of organic fertilizer	Indicator 4: Number of participants who have adopted the practice in sustaining (agroforestry)	Indicator 5: Number of participants who have adopted the practice in sustaining (urban gardens)

Indicator 6: Number of participants who have adopted the training on the application of organic fertilizer	Indicator 7: Area (hectare) of land converted to agroforestry	Indicator 8: The proportion of agroforestry types (type and area) such as silver pasture and alley cropping	Indicator 9: The area of backyard gardens converted	Indicator 10: types and quantity of organic fertilizer applied	Indicator 11: area of land receiving the organic fertilizer input

Indicator 12: Soil carbon storage as an example of land converted into agroforestry	Indicator 13: Soil carbon storage as an example of urban gardens being converted	Indicator 14: Soil Carbon storage as an example of organic fertilizer being applied	Indicator 15: Biomass being stored in agroforestry (rate?)	Indicator 16: Amount of funding allocated

ICAT Initiative for Climate Action Transparency

ghg management institute

Dept of Climate Change Govt of Vanuatu

ASSESSING POLICY impacts on SUSTAINABLE DEVELOPMENT

SD Impacts includes a wide variety of impacts across three dimensions

- Environmental Impacts, e.g., Reduced air pollution
- Social impacts e.g., gender equality
- Economic impacts e.g., job creation, balance trade

There are:

- 17 SD Goals
- 231 unique SD Indicators

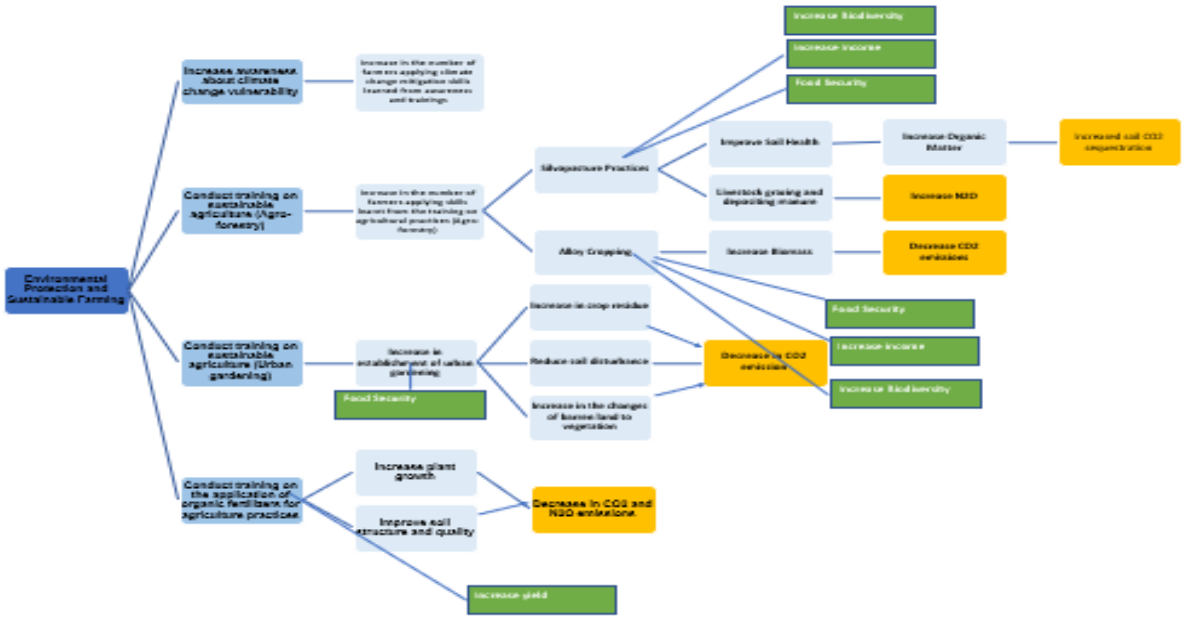
ENVIRONMENTAL IMPACTS

Groups of impact categories	Impact Categories (Examples)
Air	• Climate change (SDG 13) • Air quality and health impacts of air pollution (SDGs 3, 11, 12)
Water	• Availability of fresh water (SDG 6) • Water Quality (SDGs 6, 14) • Biodiversity of freshwater and coastal ecosystems (SDGs 6, 14)
Land	• Biodiversity of terrestrial ecosystems (SDGs 15) • Land use change including deforestation, forest degradation and desertification (SDG 15) • Soil Quality (SDG 2)
Waste	• Treatment of solid waste and wastewater (SDG 6)
Other / cross – cutting	• Resilience of ecosystem to climate change (SDG 13) • Adverse effects of climate change (SDG 13) • Depletion of non-renewable resources (SDG 12) • Genetic diversity and fair use of genetic resources (SDGs 2, 15) • Terrestrial and water acidification (SDG 114)

ECONOMIC IMPACTS

Groups of Impact categories	Impact category (examples)
Overall economic activity	• Economic Activity (SDG 8) • Economic Productivity (SDG 8 & SDG 2)
Employment	• Jobs (SDG 8) • Wages (SDG 8)
Business and technology	• New Business opportunity (SDG 8) • Innovation (SDG 8)
Income, process and costs	• Income (SDG 10) • Market distortion (SDG 12)

The causal chain for agriculture policy is illustrated below.



NEXT STEPS

- Collect and review all livestock and agriculture report
- Identify data source / collect data from:
- Climate data
- Livestock data
- Agriculture data
- Review IPCC guideline chapters 2, 3, and 5 (especially 2).
- Olga review policy description
- Finalize policy description and send to livestock and agriculture to review
- Identify to review

- Convert spreadsheet to Word document for reviewing.
- Calculations in the spreadsheet should be in the report